thoroughly slashed or laciniated. A protracted search was rewarded by finding only two leaves which exhibited the broad and comparatively simple blade so frequently met with in ordinary seasons. There are some plants which grow in a grass field near a walk frequently passed over by the writer, and these have been watched for the last two years. These same plants have now pronounced twice pinnately parted leaves which last year and in 1885 produced several radical leaves, with broad surfaces interspersed with the "holes" or vacant places in the laminæ so familiar to every botanist in the west.

There is also a difference in the position which these much laciniated leaves assume. They are numerous; without the rigidity of normal leaves, and assume a curved or drooping attitude. More than this, they curve outward and downward about equally from all sides of the centre of the plant. In other words, in the present condition of the plant there is very little indication of polarity, and the weary traveler over the dry and scorching prairie would now find a better guidance by noting the positions of the unclouded sun than to try to gain his "reckoning" by relying upon the compass plant.—BYRON D. HALSTED, *Botanical Laboratory, Ames, Ia.*

**Course of study in Fungi.**—After several years of changing and experimenting, the course in the study of fungi at the University of Michigan has taken its present shape, which is substantially as follows:

The class, having already studied botany for a year or more, are familiar with the leading facts of vegetable histology, and have made a careful study of one or more typical representatives of the great classes of plants, both cryptogamic and phanerogamic, and have also done enough work in systematic botany to be able to identify species readily. Moreover, as the course can not be elected until after one or two years have been spent at the university, those who pursue it have already acquired some knowledge of French and German, and are expected to read in both those languages selections from the most important modern literature of the subject.

The first thing aimed at is to secure a reasonable degree of familiarity with the group as a whole. Notes are given on the Peronosporeæ, Uredineæ, Ustilagineæ, etc., and specimens examined in a cursory way, so that their general appearance, the hosts on which they occur, and such other general facts as are most essential to be known at the outset, are easily acquired In connection with this class work, about ten hours a week are spent in the laboratory in identification of species. Sets of ten species each, put up in envelopes, are handed to a student, and at the end of a week or two he reports upon them. The envelopes are marked on the back like this: No. 1. On Capsella Bursa pastoris, Ann Arbor, May 21, 1887. No. 2. On leaves of cultivated peach, Ann Arbor, June 3, 1886, etc.

The student makes a microscopical examination of the specimens, writes out notes and makes sketches, and by the aid of monographs. Ellis' sets of fungi, and such other help as he can get, determines the species. The class this semester have already indentified about sixty or seventy species, and as these are selected so as to embrace representatives from the leading groups, considerable knowledge of the subject is gained even in a few weeks' time. Each student is meantime required to prepare an essay on a given subject, which is read and criticized before the close of the semester. One of these subjects given this spring reads: The Uredineæ, their life-history, with special reference to the question of heterœcism, together with an enumeration of the parasitic species that are of economical interest. In preparation for this, the student, to whom it was assigned, read largely and intelligently from de Bary, Schröter, Farlow, Hartig, Ward and other authorities.

By the time the work thus outlined has been accomplished the spring has advanced far enough to enable us to make collections, and an excursion is made every week, resulting in the collection, each time, of from one to six or eight species of parasitic fungi. We are gathering no others at present. Yesterday afternoon we gathered Synchytrium Anemones, Peronospora pygmæa, Puccinia fusca, Æcidium podophyllatum and Peronospora Ficariæ, and examined hosts for others that the class are to keep on the lookout for. The specimens obtained in this way are carried to the laboratory, identified and labeled.

In addition to this, each one in the class is doing a special piece of independent work. One is working out the histology of the common cedar apple, and another is comparing the normal peach leaf with that distorted by the Ascomyces deformans. They will spend the rest of the semester on this special work and on the collection and identification of the species gathered in our weekly trips.

There are only two students in this class. The whole number of students pursuing botany at the university this semester is about two hundred, but the course described above is carefully hedged about with requirements, so that none get into it who are not capable of doing thorough work and a good deal of it.—VOLNEY M. SPALDING.

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## EDITORIAL.

IN THE July number of *Popular Science Monthly* Dr. Farlow has a paper entitled "The Task of American Botanists." It is to be expected that such a subject and such an author would supply something both interesting and valuable. It touches upon a point of vital interest with scores of willing workers who are anxiously seeking an answer to the question, "What is there for me to do?" Of course, the question is difficult to answer, but never hopeless. The chief difficulty lies in the re-